Amendments to the Specification:

Please amend the Specification as follows:

Page 13, Line 3 please replace the paragraph with the following amended paragraph:

Fig. 6 is a ~~T~~table ~~1~~ illustrating numerous data from a regressing heat experiment.

Page 19, Lines 22-29 and Page 20, Lines 1-8 please replace the paragraph with the following amended paragraph:

In creating the temperature sensitivity algorithm according to the present invention, heat regression tests were conducted in order to test the resistance and sensitivity for the sensor coils 10 having cores 12 made of Wiegand effect material as a function of temperature as best shown in the regressing heat experiment ~~T~~table ~~1~~ (Fig. 6) and Figs. 3A and 3B. These tests established values and ranges particular to the position sensor 10 of the present invention. For instance, these predetermined values include a resistance drift value (G_r) over a large temperature range (30° to 80° C) for the sensor resistance versus temperature results shown in Fig. 3A and ~~Table1 (Fig. 6)~~ the regressing heat experiment table shown in Fig. 6 and a sensitivity drift value (G_s) over the same 30° to 80° C temperature range for the sensor sensitivity versus temperature results shown in Fig. 3B and the regressing heat experiment ~~T~~table ~~1~~ of ~~(Fig. 6)~~ Fig. 6.

Page 20, Lines 9-27 and Page 21, Lines 1-2 please replace the paragraph with the following amended paragraph:

These values were predetermined by testing the effect of the sensor core 12 composition (Wiegand effect material) on the temperature sensitivity_for twenty sensors 10 (data from eight position sensors 10 representative of all

twenty sensors 10 tested are listed in the regressing heat experiment ~~T~~table ~~1~~ of Fig. 6). For this test, each location sensor 10 consisted of a single sensor coil 10 having core 12 made of Weigand effect material. The temperature sensitivity for each of the sensor coils 10,as the position sensor, were tested in an apparatus as schematically shown in Fig. 2. Accordingly, position sensor (sensor coil 10) and thermocouple 22 were inserted into a glass tube 24, which was, in turn, placed in a hot water bath 26. Each sensor coil 10 and thermocouple 22 have wire leads 36 and 38, respectively which are attached to instruments to measure sensor voltage and temperature, respectively. Water was poured into the bath to a level sufficient to submerge each sensor 10. The bath was placed inside a Helmholtz chamber, consisting of three pairs of mutually orthogonal Helmholtz coils.

Page 22, Lines 10-23 please replace the paragraph with the following amended paragraph:

First, since the current (I) delivered through each sensor 10 is consistent and uniform (from a 4 KHz signal delivered by the position and orientation system 30 shown in Fig. 4), the voltages read on each sensor 10 at each temperature were converted to a resistance value by signal processor 48. Resistance drift values G_r were plotted against temperature as illustrated in Fig. 3A and the regressing heat experiment ~~T~~table ~~1~~(Fig. 6). The resistance values (in ohms) were measured at each temperature along the selected temperature range (30° to 80° C) and were converted to the gradient values G_r (as % drift of resistance), i.e. the percentage difference of a sensor coil resistance at temperature T relative to its resistance at 80°C according to the equation:

Page 24, Lines 12-20 please replace the paragraph with the following amended paragraph:

Based on the testing conducted, a temperature sensitivity algorithm has been created for the location system 30. The data from the testing showed that the resistance change b_0 and the sensitivity change a_0 for the position sensors 10 tested are constants as evidenced by the results in the regressing heat experiment ~~T~~table ~~1~~ (Fig. 6) and Figs 3A and 3B. Both of these constants (a_0 and b_0) are stored in the memory of the signal processor 48 for the location system 30.